What is claimed is:

1. A radiation image read-out method, comprising the steps of:

i) linearly irradiating stimulating rays onto an area of a stimulable phosphor sheet, on which a radiation image has been stored, with stimulating ray irradiating means, the stimulating rays causing the stimulable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to radiation,

ii) receiving the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, with one surface of a light guide device, which is located such that the one surface stands facing the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, the emitted light, which has thus been received, being guided through the light guide device toward end faces of the light guide device,

iii) detecting the emitted light, which has been radiated out from at least one end face of the light guide device, with a line sensor, which comprises a plurality of photoelectric conversion devices arrayed along the at least one end face of the light guide device, and

iv) moving the stimulable phosphor sheet with respect to the stimulating ray irradiating means, the light guide device, and the line sensor and in a direction, which is approximately normal to a length direction of the linear area of the stimulable

phosphor sheet exposed to the linear stimulating rays.

2. A radiation image read-out method, comprising the steps of:

i) linearly irradiating stimulating rays onto an area of a stimulable phosphor sheet, on which a radiation image has been stored, with stimulating ray irradiating means, the stimulating rays causing the stimulable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to radiation,

ii) receiving the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, with one surface of a light guide device, which is located such that the one surface stands facing the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, the emitted light, which has thus been received, being converted by the light guide device into fluorescence, the fluorescence being guided through the light guide device toward end faces of the light guide device,

iii) detecting the fluorescence, which has been radiated out from at least one end face of the light guide device, with a line sensor, which comprises a plurality of photoelectric conversion devices arrayed along the at least one end face of the light guide device, the emitted light being thereby detected indirectly, and

iv) moving the stimulable phosphor sheet with respect to the stimulating ray irradiating means, the light guide device,

and the line sensor and in a direction, which is approximately normal to a length direction of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays.

3. A method as defined in Claim 1 or 2 wherein each of two line sensors is located at one of two end faces of the light guide device, which end faces stand facing each other, such that each of the two line sensors is capable of detecting the light, which is emitted from an approximately overall length of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, and

outputs of photoelectric conversion devices of the two line sensors, which photoelectric conversion devices correspond to an identical site on the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, are added to each other.

4. A method as defined in Claim 1 or 2 wherein the line sensor is located at one end face of the light guide device, such that the line sensor is capable of detecting the light, which is emitted from an approximately overall length of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, and

an end face of the light guide device, the end face being located on a side opposite to the one end face at which the line sensor is located, is formed as a light reflecting surface.

5. A method as defined in Claim 1 or 2 wherein at least one line sensor is located at a region of one end face of the light

guide device, such that the at least one line sensor is capable of detecting the light, which is emitted from a subarea of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays,

a region of the one end face of the light guide device, at which region no line sensor is located, is formed as a light reflecting surface,

at least one line sensor is located at a region of a different end face of the light guide device, which different end face stands facing the one end face of the light guide device, such that the at least one line sensor stands facing the region of the one end face of the light guide device, which region is formed as the light reflecting surface, and

a region of the different end face of the light guide device, at which region no line sensor is located, is formed as a light reflecting surface.

6. A method as defined in Claim 1 or 2 wherein the light guide device is divided into pixels, which are arrayed along an array direction of the photoelectric conversion devices of the line sensor and at a pitch identical with an array pitch of the photoelectric conversion devices.

7. A method as defined in Claim 1 or 2 wherein the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, is collected with a light collecting optical system, and the emitted light, which has thus been collected, is guided by the light collecting

optical system toward the light guide device.

8. A method as defined in Claim 7 wherein the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, is collected with a plurality of light collecting optical systems, and the emitted light, which has thus been collected, is guided by each of the light collecting optical systems toward the light guide device.

9. A radiation image read-out apparatus, comprising:

i) stimulating ray irradiating means for linearly irradiating stimulating rays onto an area of a stimulable phosphor sheet, on which a radiation image has been stored, the stimulating rays causing the stimulable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to radiation,

ii) a light guide device, which is located such that one surface stands facing the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, the light guide device receiving the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, with the one surface of the light guide device and guiding the emitted light, which has thus been received, toward end faces of the light guide device,

iii) a line sensor, which comprises a plurality of photoelectric conversion devices arrayed along at least one end face of the light guide device, the line sensor detecting the emitted

light, which has been radiated out from the at least one end face of the light guide device, and

iv) sub-scanning means for moving the stimulable phosphor sheet with respect to the stimulating ray irradiating means, the light guide device, and the line sensor and in a direction, which is approximately normal to a length direction of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays.

10. A radiation image read-out apparatus, comprising:

i) stimulating ray irradiating means for linearly irradiating stimulating rays onto an area of a stimulable phosphor sheet, on which a radiation image has been stored, the stimulating rays causing the stimulable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to radiation,

ii) a light guide device, which is located such that one surface stands facing the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, the light guide device receiving the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, with the one surface of the light guide device, converting the emitted light, which has thus been received, into fluorescence, and guiding the fluorescence toward end faces of the light guide device,

iii) a line sensor, which comprises a plurality of photoelectric conversion devices arrayed along at least one end

face of the light guide device, the line sensor detecting the fluorescence, which has been radiated out from the at least one end face of the light guide device, and thereby indirectly detecting the emitted light, and

iv) sub-scanning means for moving the stimulable phosphor sheet with respect to the stimulating ray irradiating means, the light guide device, and the line sensor and in a direction, which is approximately normal to a length direction of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays.

11. An apparatus as defined in Claim 9 or 10 wherein each of two line sensors is located at one of two end faces of the light guide device, which end faces stand facing each other, such that each of the two line sensors is capable of detecting the light, which is emitted from an approximately overall length of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, and

the apparatus further comprises addition processing means for performing addition processing on outputs of photoelectric conversion devices of the two line sensors, which photoelectric conversion devices correspond to an identical site on the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays.

12. An apparatus as defined in Claim 9 or 10 wherein the line sensor is located at one end face of the light guide device, such that the line sensor is capable of detecting the light, which

is emitted from an approximately overall length of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, and

an end face of the light guide device, the end face being located on a side opposite to the one end face at which the line sensor is located, is formed as a light reflecting surface.

13. An apparatus as defined in Claim 9 or 10 wherein at least one line sensor is located at a region of one end face of the light guide device, such that the at least one line sensor is capable of detecting the light, which is emitted from a subarea of the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays,

a region of the one end face of the light guide device, at which region no line sensor is located, is formed as a light reflecting surface,

at least one line sensor is located at a region of a different end face of the light guide device, which different end face stands facing the one end face of the light guide device, such that the at least one line sensor stands facing the region of the one end face of the light guide device, which region is formed as the light reflecting surface, and

a region of the different end face of the light guide device, at which region no line sensor is located, is formed as a light reflecting surface.

14. An apparatus as defined in Claim 9 or 10 wherein the light guide device is divided into pixels, which are arrayed

along an array direction of the photoelectric conversion devices of the line sensor and at a pitch identical with an array pitch of the photoelectric conversion devices.

15. An apparatus as defined in Claim 9 or 10 wherein the apparatus further comprises a light collecting optical system, which is located between the stimulable phosphor sheet and the light guide device, the light collecting optical system collecting the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, and guiding the emitted light, which has thus been collected, toward the light guide device.

16. An apparatus as defined in Claim 15 wherein the light, which has been emitted from the linear area of the stimulable phosphor sheet exposed to the linear stimulating rays, is collected with a plurality of light collecting optical systems, and the emitted light, which has thus been collected, is guided by each of the light collecting optical systems toward the light guide device.